FORM 37

Rule 60(1)

FINDING INTO DEATH WITH INQUEST

Section 67 of the ***Coroners Act 2008***

Court reference: 963/05

Inquest into the Death of KUM YEO BAE

Delivered On:	16 April 2010
Delivered At:	Coroners Cout of Victoria, 436 Lonsdale Street, Melbourne
Hearing Dates:	12 November 2008 and 5 November 2009
Findings of:	JOHN OLLE
Representation:	Mr Michael Wilson of Counsel for Mr O'Brien Mr Neill Murdoch of Counsel for Alfred Health Mr Chris Winneke of Counsel for Dr Marshall and Dr Langley
Place of death:	The Alfred Hospital
SCAU:	Seargeant T Fitzgerald

In the Coroners Court of Victoria at Melbourne
I, JOHN OLLE, Coroner

having investigated the death of:

Surname:	BAE
First name:	KUM
Address:	Unit 2 / 10 Paget Street, Huntingdale, Victoria 3166

AND having held an inquest in relation to this death on 12 November 2008 and 5 November 2009 at Melbourne find that the identity of the deceased was KUM YEO BAE
and death occurred on 21 March 2005 at The Alfred Hospital, Commercial Road, Prahran 3181 from

1a Penetrating Injury of the descending Thoracic Aorta complicating spinal stabilization surgery for a T12 burst fracture

in the following circumstances:

1. Mrs Kum Bae was aged 60 years at the time of her death. She lived with her husband David Bae at their home at 2/10 Paget Street, Hughesdale.

2. On the 16 March 2005, Mrs Bae suffered a fall. Subsequent CT and MRI scans revealed a burst fracture of T12 without injury to the posterior elements. Initial treatment comprised:

"mobilisation of the patient in an anti-flection brace resulted in further collapse of the vertebral body of T12 as assessed by standing lateral X-Ray examination. This was considered to represent a failure of conservative treatment and posterior instrumented fusion from T11 to L1 was planned and theatre time requested on 20/3/2005.

Consent was obtained from the patient through her husband as interpreted by Dr Thornton, Neurological RNO, and the risk of death included in the discussion."[1]

3. Michele Walker, Co-Director, Neuroscientist and Medicine, explained:

   "On the 20 March 2005, Mrs Kum Bae's surgery was required to be deferred due to emergency trauma cases being conducted in the Operating Theatre complex and organ transplant teams also requiring available operating theatres which have occurred throughout the early hours of the morning of Sunday 20th March. Mrs Kum Bae was fasted from midnight on the 20th and taken to theatre for her procedure on 21st March, 2005 at approximately 1.00pm, as an Operating Theatre suddenly became available due to another case being cancelled." [2]

4. Mr John Brecknell, surgeon performing the procedure explained:

   "Once scrubbed, the level was confirmed under image intensification and the pedicles of T11 and L1 marked the K wires. The left T11 pedicle was approached first. As an awl was being used to start the cannulation, the pedicle fractured and the awl plunged superiorly and deep."[3]

5. Dr Linda Iles, Forensic Pathologist, performed the autopsy on Mrs Bae and explained:

   "Mrs Bae has died as a result of haemorrhage resulting from a penetrating injury to the descending thoracic aorta. This occurred during spinal stabilisation surgery for a T12 burst fracture. A penetrating wound is demonstrable from the left pedicle of T11 and this extends slightly superiorly and medially to lie adjacent to the T10 vertebral body. There is haemorrhage around this wound track, and the track is in continuity with a repaired laceration of the medical thoracic aorta. The findings at autopsy are consistent with the medical history of a penetrating type injury upon cannulation of the T11 pedicle during posterior stabilisation surgery."[4]

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[1] Statement Mr J. Brecknell, dated 19 December 2005
[2] Statement Michele Walker April 2005
[3] Statement Mr Brecknell dated 19 December, 2005
[4] Autopsy Report of Dr Iles

About an Inquest

6. The Coroners Court is different from other Courts. It is inquisitorial rather than adversarial. In other words, an inquest is not a trial, with a prosecutor and a defendant. But an inquiry that seeks to find the truth about a person's death - to establish what happened, rather than who is to blame. This gives Coroners more freedom but less power. They are more flexible in the evidence they accept, but they cannot punish. Instead, they make recommendations, if appropriate, that may help avoid similar deaths.

7. Coroners consider all the evidence and material that comes before them. Not every issue makes its way to the finding, but everything has been weighed up and analysed.

Issues for the Inquest

8. A coroner investigating death must find: [5]

- the identity of the person who has died;
- the cause of death;
- how (in what circumstances) the death occurred.

9. In this inquest, identity and medical cause of death are not an issue. They are recorded in the title page of this finding. My focus is how (in what circumstances) Mrs Bae died.

10. I have sought and received submissions from the parties represented in the inquest. The submissions have greatly assisted my task.

11. I find the following:

   a. In all the circumstances, the decision of Mr O'Brien to utilise a window of opportunity and proceed with the surgery was appropriate.

   b. Mr Brecknell was appropriately qualified to undertake the procedure. Further, Mr Brecknell had appropriately familiarised himself with Mrs Bae's file.

   c. There is no basis to find that the plunge of the pedicle awl ('the plunge') was the result of lack of care, on the part of Mr Brecknell.

[5] The inquest commenced under the old Act and concluded under the new Act. The saving and transitional provisions of the new Act, in particular, Clause 7(1)(2) "Inquest Commenced Under Old Act" establishes the provisions of section 19(1) of the old Act are deemed to be findings under Section 67(1) of the new Act.

d. The plunge was of sufficient concern to the operating team that Mr O'Brien was called for guidance.

e. Mr O'Brien was not provided the complete clinical picture; in particular, he was not told the plunge caused an acute episode of blood loss of 300-400mls.

f. The plunge caused a penetrating injury to the descending aorta.

g. Resuscitative fluids were appropriately administered, swiftly achieving haemodynamic stability.

h. Dr Langley attended theatre shortly after the incident at which time haemodynamic stability had been achieved.

i. Dr Langley misunderstood the nature of the blood loss, believing 300-400 ml was lost over the duration of the procedure, rather than an acute episode at the plunge.

j. The stability of Mrs Bae on the attendance of Dr Langley was inconsistent with an aortic tear, no doubt contributing to Dr Langley's innocent misunderstanding of the nature of the blood loss.

k. From an anaesthetic point of view, it was reasonable for Dr Langley and Dr Marshall to be comfortable to proceed.

Sequence of Conversations

12. The first telephone discussion was between Dr Langley and Mr O'Brien. Mr O'Brien was unable to recall speaking to Dr Langley. In evidence, Dr Langley couldn't recall, but believed he would have mentioned the amount of blood loss.

13. In light of his belief at the time, if Dr Langley told Mr O'Brien the amount of blood loss, it would not have been considered significant.

14. According to Mr O'Brien and Dr Langley, the significant clinical issue was the haemodynamic stability of Mrs Bae.

15. In his first statement, Mr Brecknall explained:

> "the plunge resulted in quite apparently minor blood loss".

16. He further stated:

> "The volume of blood lost posteriorly was a matter of only a few ml and the anaesthetist reported that the hypotension was minor, lasted only a few seconds, and normalised rapidly."

17. In his subsequent statement, Mr Brecknell explained:

> "I agree that 300-400 mls does not represent a minor welling of blood... and if approaching a pint had been lost during the plunge, I would have been extremely alarmed. My recollection so long after the event and my statements at the time record that the amount of blood lost during the plunge itself was brief and minimal. It may be that the volume quoted by the anaesthetist represents the amount of blood lost to that point in the operation, or the amount since the suction canister was last observed, or it may include a volume of wash. The anaesthetic team may be able to clarify this point. Mr O'Brien made his decision for me to continue the case based on the information provided by me by telephone, including the description of the amount of blood being minimal." [6]

18. Mr Brecknell was unable to give evidence at the inquest. He lives and works in the United Kingdom. At my request, he provided a supplementary statement which has been a significant assistance to me in performing my task.

Mr Brecknell did not realise 300-400 ml blood loss occurred at the plunge

19. Mr Brecknell would not have deliberately misrepresented the amount of blood loss which occurred at the time of the plunge. He had agreed to call Mr O'Brien for guidance. It was not merely incumbent on him to provide Mr O'Brien as accurate a clinical picture as possible, but in the best interests of his patient, to do so.

20. Dr Langley was unaware of the acute nature of the blood loss. I am satisfied Mr Brecknell was equally mistaken. When he spoke to Mr O'Brien, he did not know that an acute episode of 300-400 ml blood loss had occurred at the plunge.

21. Mr Brecknell would have been alarmed by an acute episode of 300-400 ml blood loss, in the context of the plunge. He would have told Mr O'Brien in his telephone conversation, only minutes after the plunge.

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[6] Supplementary Statement by Mr Brecknell, dated 13 January 2009

Why wasn't Mr O'Brien aware of the acute blood loss?

22. Only Dr Marshall knew the blood loss of 300-400 ml occurred at the plunge. I accept that Dr Marshall believed Mr Brecknell understood the blood loss occurred at the plunge. Through no fault of his, it is apparent the acute nature of the loss was not understood by either Mr Brecknell or subsequently, Dr Langley.

23. Mr O'Brien was not informed of the acute blood loss because neither Mr Brecknell nor Dr Langley knew the 300-400 ml was lost at the plunge.

24. In a moment of crisis, an innocent miscommunication occurred.

25. Mr Brazenor, an independent expert neurologist graphically described the dreadful scenario confronted by Mr Brecknell and Dr Marshall, as a result of the plunge.

26. Though appropriately qualified, both were nonetheless, trainees. Each required immediate guidance from superiors, Dr Langley and Mr O'Brien.

27. The evidence of Dr Marshall was clear. The blood loss consequent upon the plunge was 300-400mls. I repeat, there is no basis to criticise Dr Marshall who believed that Mr Brecknell understood the acute nature of the blood loss.

28. Dr Marshall immediately commenced resuscitative fluids. Haemodynamic stability was rapidly achieved (less than one minute following introduction of fluids). There was no further blood loss. Further, blood pressure, heart rate and pulse were rapidly restored. Dr Langley arrived in theatre only minutes after the incident. Haemodynamic stability had been achieved.

29. Dr Langley explained the clinical signs were inconsistent with aortic injury.

30. Dr Langley was an impressive and forthright witness. He would not have allowed Mr Brecknell to misrepresent the clinical picture to Mr O'Brien. He was present and heard the conversation. He held the telephone to Mr Brecknell's ear.

31: On the clinical picture presented to him, Mr O'Brien's decision to complete the procedure was reasonable.

32. In all the circumstances, the miscommunication, though regrettable, is readily understood.

All surgeons expressed an opinion that acute blood loss of 300-400mls was significant and indicative of aortic tear

33. The significance of an **acute** episode of 300-400 ml blood loss varies between the anaesthetists and surgeons. Dr Langley explained that had he understood the acute nature of the blood loss, his opinion would not alter. The haemodynamic stability was inconsistent with aortic tear.

34. Mr. Brazenor, Mr O'Brien and Mr Brecknell held a different opinion.

35. However, there was no reasonable prospect of saving Mrs Bae's life

36. Mr Brazenor agreed with Mr O'Brien. If believed the plunge severed the aorta, there were only two reasonable options a surgeon would have considered. Complete the procedure before conducting investigations or close and convey Mrs Bae to radiology to have a CT scan performed.

37. The surgeons were in agreement and I accept neither option would have altered the sad outcome.

Should a Thoracic Surgeon be called?

38. Mr Brazenor explained that the crucial lesson he learnt from this tragic event was that he would now call a thoracic surgeon immediately.

39. If a thoracic surgeon had been called:

a) he may not have been able to attend immediately
b) in view of the stability, might not attend until the procedure was complete;
c) if present, may not open the thoracic cavity.

40. In summation:

a. The decision of Mr O'Brien to utilise the window of opportunity was sound.
b. Mr Brecknell was qualified and had adequately prepared himself to perform the procedure.
c. The procedure was extremely delicate. There is no basis to find that the regrettable plunge was the result of any lack of care on the part of Mr Brecknell.
d. Mr Brecknell and Dr Marshall were confronted with a dreadful scenario.

e. Mr O'Brien did not receive the full clinical picture. The failure to fully appraise him was not the result of deliberate omission.
f. Communication errors occur in situations of crisis.
g. Mr Brecknell believed the blood loss was minor.
h. Dr Langley considered the blood loss was not significant (he understood it occurred over a one to one and a half hour period).
i. Stability was the most compelling reason to complete the procedure prior to investigating the tear; Mr O'Brien and Dr Langley.
j. All clinicians considered the possibility of an aortic tear, but in the circumstances, considered a tear of a segmental source more likely.
k. The decision to proceed with the surgery in all circumstances was appropriate.

In Hindsight

41. Mr O'Brien agonised what he would have done with the benefit of hindsight. Namely, if he was told the plunge caused an acute blood loss of 300-400 ml. Though likely satisfied the aorta was torn, due to the haemodynamic stability and with relative proximity of a cessation of the surgery, his decision to continue may not have altered.

42. Conversely, had he directed closure and transport to radiology for a CT scan, Mrs Bae would likely die on the trolley or in radiology.

43. Mr Brazenor agreed with Mr O'Brien. Neither option reasonably open in 2005 would have altered the tragic outcome.

Cross Matched Blood

44. I accept the evidence of Dr Marshall and Dr Langley. The haemoglobin reading and amount of blood loss did not justify the commencement of blood transfusion to occur.

45. Cross-matched blood was available.

The decision to proceed with surgery was reasonable.

46. Mr O'Brien explained:

> "I considered to stop the case when the patient was stable to perform an on-table, intraoperable angiogram to have potentially taken 60 minutes or more to arrange. So I felt that any on-table intratheatre investigations were not going to give either reliable information or timely information, so I considered the next procedure investigation to be

a CT angiogram. I was mindful that that would require the patient to go off the floor and I wanted the patient to go off the floor so long as they were stable, they were currently stable, but because of all the preparation that had been performed, the next phase of the procedure, I anticipated the likelihood that the patient would get to a CT angiogram... would be within 60 minutes and that was the course of action we chose. At The Alfred hospital there is no dedicated intraoperative angiogram suite which could have performed the procedure in 2005 within a quicker period of time."

In Conclusion

47. The death of Mrs Bae is tragic.

48. I endorse the comments of Mr Brazenor:

> "I think this was a terrible tragedy for everyone, particularly for the family, of course but I don't see that anyone did anything wilfully wrong in this and I think everybody in that theatre was trying to save her life."

49. I find:

  a. The decision to proceed with the surgery and utilise the window of opportunity was appropriate;
  b. The plunge was not indicative of a lack of reasonable care by Mr Brecknell;
  c. The decision to continue the surgery post the plunge was not unreasonable;
  d. Mrs Bae's death was not preventable by the exercise of reasonable care.

50. Mr O'Brien explained:

  a. St Vincent's Hospital planned the completion of an intraoperative angiogram suite in 2009. He was not aware of it being available elsewhere in Victoria.
  b. Internationally an intraoperative CT scan is considered state of the art and is widely used.
  c. Several million dollar front end cost are required to construct a dedicated theatre with the requisite radiological equipment.

51. Whether the on-table angiogram would have saved Mrs Bae's life is speculative. However, according to Mr O'Brien:

> "It certainly would have allowed for an on-table angiogram to be performed within a much shorter period of time but because of the various logistics of activating that, I'm still not sure it would have been of any benefit in this specific case."

52. He further explained:

"I think that they would certainly be very beneficial in regular use."

Recommendation pursuant to S. 72(2) Coroners Act 2008

The Alfred Hospital consider the construction of intraoperative CT scan suites.

Comment pursuant to S. 67(3) Coroners Act 2008

53. Mr Brazenor explained that a lesson he learnt:

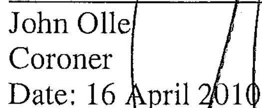
"I've learnt if this ever happens to my patient, I will get a thoracic surgeon into the theatre, that's - I've learnt a lesson from this. I suspect Mr O'Brien has learned that it's rotten to work at a public hospital when you are trying to have your, where your cases are forced for you into small windows in time that are very inconvenient. If this wasn't the worse day of Mr O'Brien's life, it would have been close and I think Mr Brecknell would have learnt that it is a hazardous thing taking over operations of somebody, bearing in mind that it is relatively junior and inexperienced."

54. The lesson learnt by Mr Brazenor ought be widely disseminated.

55. I thank Counsel who appeared before me.

56. I acknowledge the tragic loss suffered by the family of Mrs Bae. I acknowledge the quiet dignity exhibited by Mr Bae throughout the course of this inquest.

Signature:



John Olle
Coroner
Date: 16 April 2010

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